

Fls. and Frts. : June-December.

Distribution : South India ; in Meghalaya recorded only from Balphakram Sanctuary.

DEPARTMENT OF BOTANY,
NORTH-EASTERN HILL UNIVERSITY,
SHILLONG-793 014,
September 2, 1980.

Herbarium specimens examined : Meghalaya : Garo Hills — Balphakram Sanctuary Y. Kumar 5402 ; K. Haridasan 4156 (NEHU).

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REFERENCES

- HOOKER, J. D. (1872-97) : Flora of British India, 7 vols. London. KANJILAL, U. N., KANJILAL, P. C., DE, R. N., DAS, A. AND BOR, N. L. (1934-40) : Flora of Assam, 5 vols. Shillong.

38. FLORAL SPIRALS IN *AMORPHOPHALLUS* SPP. NOT CONFORMING WITH FIBONACCI NUMBERS

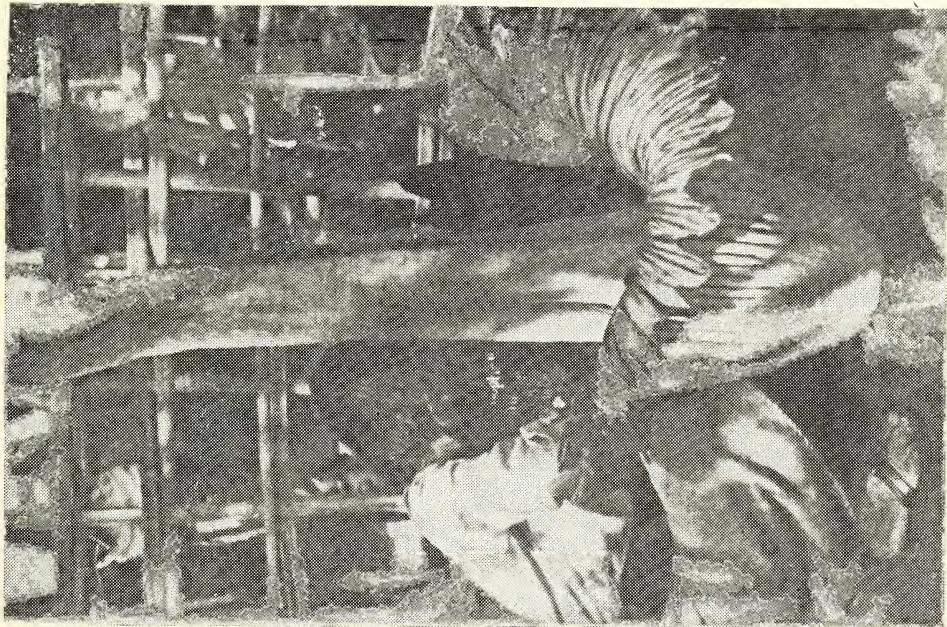
(With a plate)

The Fibonacci numerical sequence beginning with 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 etc. has recently assumed great importance. Each term in the sequence is the sum of the previous two terms. There are infinite mathematical properties for these simple-looking sequence which are being investigated by hundreds of Mathematicians round the world who have formed themselves into a society called Fibonacci Association with its headquarters in California, and who publish most of their findings in their own journal called Fibonacci Quarterly.

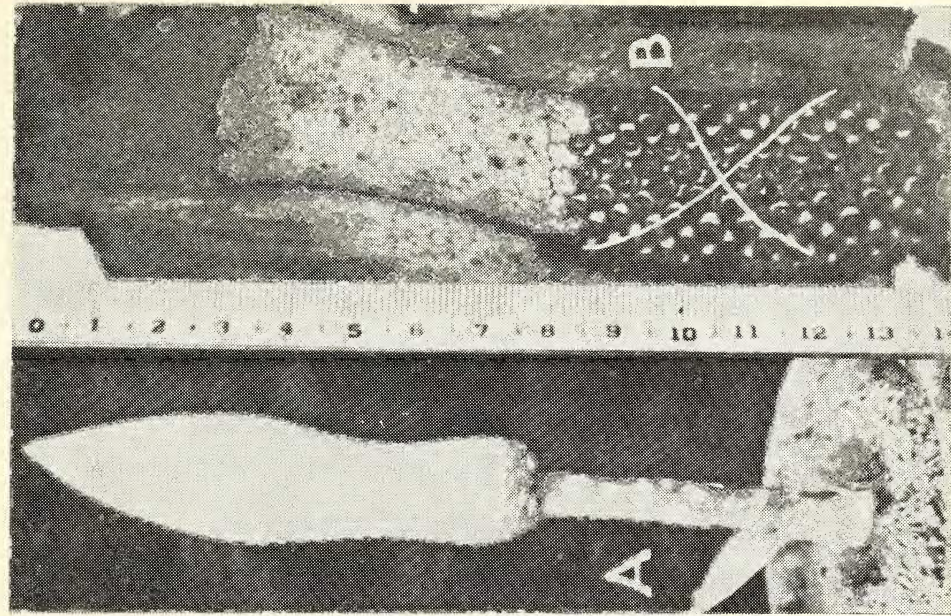
Fibonacci sequence has application in many fields apart from mathematics, such as, architecture, astronomy, art, poetry, botany, zoology, music, engineering and anthropology. Davis and Bose (1971) published data from several species of aroids. The spiral numbers in the spadix of some of these species matched exactly with some of the Fibonacci numbers, while in other species, the spirals numbers differ from Fibonacci numbers as per summary of data given in Table 1.

From data in Table 1 it is clear, that out of the 73 spadices examined from 6 species of *Anthurium*, 72 bore spirals whose numbers matched with Fibonacci numbers. *Diffenbachia dagneus* also comes under this category. But in the rest of the species, some or all of the spadices do not conform to displaying Fibonacci spirals. It may be mentioned, that the clockwise and counter-clockwise moving spirals within a spadix in any *Anthurium* sp. synchronise with two consecutive Fibonacci numbers. But in five other species, many of the spadices bear equal numbers of spirals (5 : 5, 8 : 8, or 13 : 13) running clockwise as well as counter-clockwise.

The observation reported below relate to four species of *Amorphophallus* grown at the Indonesia Botanic Garden, Bogor, Indonesia. The spadix of none of the species examined displayed spirals in accordance with Fibonacci numbers. The most striking and spectacular of the three species is *A. titanum* whose gigantic inflorescence appears only once in three



Left : Gigantic spadix of *Amorphophallus titanum*.



Right : *Amorphophallus blumei* : A, an unopened spadix ; B, closer view of spadix where the spathe has been removed. Note the spiral arrangement of the female flowers.

